

**CLAIMS**

1. A monochrome image sensor device (100) comprising a substrate (1) and a pixel structure wherein said monochrome image sensor device (100) further comprises a planarization layer (30) provided on top of the pixel structure, wherein the planarisation layer (30) at the same time is an anti reflective coating.  
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2. A monochrome image sensor device (100) according to claim 1, wherein the thickness of said planarization layer (30) and the refractive index of said planarisation layer (30) are optimized to also act as an anti-reflection medium for at least one region of said image sensor device (100).  
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3. A monochrome image sensor device (100) according to claim 1, wherein said planarization layer (30) consists of a polymer.  
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4. A monochrome image sensor device (100) according to claim 3, wherein said polymer is a photoresist.
5. A monochrome image sensor device (100) according to claim 1, wherein said pixel structure is a MOS-based pixel structure.  
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6. A monochrome image sensor device (100) according to claim 1, wherein said pixel structure is either an active pixel structure or a passive pixel structure.  
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7. A monochrome image sensor device (100) according to claim 2, wherein said planarization layer (30) comprises of a stack of films.
8. A monochrome image sensor device (100) according to claim 7, wherein the films in said stack have a refractive index that gradually changes from the refractive index of material (40) surrounding the sensor device (100) or a value as close as possible to said refractive index of material (40)  
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surrounding the sensor device (100), to the refractive index of a top layer of said pixel structure.

- 5           9. A monochrome image sensor device (100) according to claim 7, wherein the films in said stack have a monotone continuously varying refractive index.
- 10          10. A monochrome image sensor device (100) according to claim 1, wherein said image sensor device (100) further comprises an additional anti-reflective coating on top of the planarization layer (30).
- 15          11. A method for making a monochrome image sensor device (100), comprising
  - providing a substrate (1),
  - applying a pixel structure on or in the substrate (1), and
  - providing a planarization layer (30) on top of the pixel structure.
- 20          12. A method according to claim 11, wherein applying a pixel structure comprises using MOS-based processing technology.
- 25          13. A method according to claim 11, wherein providing a planarization layer (30) on top is performed using spin coating or dip coating.
- 30          14. A method according to claim 11, wherein providing a planarization layer (30) comprises providing a stack of films.
15. A method according to claim 14, wherein providing a stack of films comprises providing a stack of films having gradually changing refractive indexes.
16. A method according to claim 11, furthermore comprising providing an anti-reflective coating on top of the planarization layer (30).

17. A method for improving light impingement on a monochrome image sensor device (100) comprising providing a planarisation layer (30) on top of a pixel structure of said image sensor device (100) to avoid a lensing effect, whereby the planarisation layer (30) is at the same time an anti-reflective coating.